

APPENDIX III

FLAMMULATED OWLS – TRANSECT LOCATION FORM

FOREST or General Area: Clearwater NF - Pete King Creek Drainage

TRANSECT NUMBER:

TRANSECT NAME: Pete KING 1

10 stations (1 through 10)

GPS for POINT 1:

North
Lat: 5115370

All locations
in UTM's

East
Long: 605242



DATUM: NAD83 Zone 11

DIRECTIONS TO START POINT (from nearest main road) and ACCESS INFORMATION:

Take State Highway 12 to the Pete King Creek Road FSR 453

Drive to the end (crosses 2 small bridges) and Park. Take Hiking trail 9006 (Higgins Hump Hill Climb) to PK-FLAM-10A. To get to PK-FLAM-10, Part before the end of Rd at the TRAIL 105 trail head.

ACCESS CONSIDERATIONS (check those that apply):

4WD ONLY

2WD OKAY

HIGH CLEARANCE ONLY

HIKE TO START

OPEN ROAD

CLOSED ROAD (key needed)

to PK-FLAM-10A & 10-
Pete King Creek Rd.

VISIT 1

ASC Flammulated Owl Protocol

Appendix IV - data form
Flammulated Owl Surveys – Montana and Idaho (USFS Region 1)

OBS			FOREST	Clearwater	DATE	6/1/2009
Transect #	DK 1		Transect Name	Pete King 1	#obs	0
General location: Parked @ end of the road and hiked up trail on broad ridge. Originally thought this was how to access PK-FLAM-10 but realized we were on a side trail. So, called this PK-FLAM-10A.						

STOP	1	WGS 84	way point		lat	5115370	East long	- 605242
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STOP 1	Start Time	2	1	0	0	WIND	0	SKY	0	TEMP	57°	NOISE	1
FLAM 1 N Y	b4 call: Y (N)	after call 1: Y (N)		after call 2: Y		# min		direct-n		distance			
FLAM 2 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 3 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
Incidental owls – species, distance and notes 2112 260° several single hoots after survey spaced out longer than typical Flam Courtship call. Across drainage to sw. Possibly a great horn.						Flam comments – visual?							

STOP	2	WGS 84	way point		lat	5115025	long	- 605295
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STOP 2	Start Time	2	1	5	4	WIND	0	SKY	0	TEMP	57°	NOISE	2
FLAM 1 (N) Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 2 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 3 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
Incidental owls – species, distance and notes Stream noise louder at this point						Flam comments – visual?							

Appendix IV - data form

Flammulated Owl Surveys – Montana and Idaho (USFS Region 1)

OBS				FOREST	Clearwater	DATE	6/11/2019
Transect #	PK 1			Transect Name	Pete King 1	#obs	0
General location: FSR 453							

STOP	N	WGS 84	way point		lat	51.4879	long	- 605.282
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STOP 1	Start Time	2	2	1	2	WIND	0	SKY	0	TEMP	57°	NOISE	2
FLAM 1 (N) Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 2 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 3 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
Incidental owls – species, distance and notes None						Flam comments – visual?							

STOP	2	WGS 84	way point		lat	51.4678	long	- 606.209
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STOP 2	Start Time	2	2	2	7	WIND	0	SKY	0	TEMP	57°	NOISE	2
FLAM 1 (N) Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 2 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 3 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
Incidental owls – species, distance and notes None						Flam comments – visual?							

Appendix IV - data form

Flammulated Owl Surveys – Montana and Idaho (USFS Region 1)

OBS				FOREST	Clearwater	DATE	6/11/2009
Transect #	PK1			Transect Name	Pete King 1	#obs	8
General location: FSR 453							

STOP	1	WGS 84	way point		lat	51.4832	long	- 606.703
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STOP 1	Start Time	2	2	4	3	WIND	0	SKY	0	TEMP	57°	NOISE	1
FLAM 1 (N) Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 2 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 3 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
Incidental owls – species, distance and notes						Flam comments – visual?							
None													

STOP	2	WGS 84	way point		lat	51.4905	long	- 607.197
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STOP 2	Start Time	2	3	0	0	WIND	0	SKY	0	TEMP	57°	NOISE	1
FLAM 1 (N) Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 2 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 3 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
Incidental owls – species, distance and notes						Flam comments – visual?							
None													

Appendix IV - data form

Flammulated Owl Surveys – Montana and Idaho (USFS Region 1)

OBS				FOREST	Clearwater	DATE	6/11/2009
Transect #	PK1		Transect Name	Pete King 1		#obs	0
General location: FSR 453							

STOP	1	WGS 84	way point		lat	51.4632	long	- 6076.77
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STOP 1	Start Time	2	3	1	8	WIND	0	SKY	0	TEMP	57°	NOISE	1
FLAM 1 (N)Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 2 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 3 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
Incidental owls – species, distance and notes						Flam comments – visual?							
None													

STOP	2	WGS 84	way point		lat	51.4460	long	- 608.144
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STOP 2	Start Time	2	3	3	3	WIND	0	SKY	0	TEMP	57°	NOISE	1
FLAM 1 (N)Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 2 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 3 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
Incidental owls – species, distance and notes						Flam comments – visual?							
None													

Appendix IV - data form

Flammulated Owl Surveys – Montana and Idaho (USFS Region 1)

OBS			FOREST	Clearwater	DATE	6/11/2009
Transect #	PK 1		Transect Name	Pete King 1	#obs	0
General location: FSR 453						

STOP	X	WGS 84	way point		N lat	511.4265	E long	- 608.591
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STOP 1	Start Time	2	3	4	8	WIND	0	SKY	0	TEMP	50.5	NOISE	2
FLAM 1 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 2 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 3 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
Incidental owls – species, distance and notes						Flam comments – visual?							
NONE													

STOP	X	WGS 84	way point		N lat	511.3825	E long	- 608.831
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STOP 2	Start Time	2	3	4	8	WIND	0	SKY	0	TEMP	50.5	NOISE	2
FLAM 1 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 2 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 3 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
Incidental owls – species, distance and notes						Flam comments – visual?							
NONE													

Appendix IV - data form

Flammulated Owl Surveys – Montana and Idaho (USFS Region 1)

OBS				FOREST	Clearwater	DATE	7/17/2009	
Transect #		PK 1		Transect Name		Pete King 1	#obs	0
General location: ~ 0.3 miles out Trail 105 from FSR 453								

PK-FLAM-10

STOP	<input checked="" type="checkbox"/>	WGS 84	way point		N lat	5115546	E long	- 604734
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STOP 1	Start Time	2	1	0	0	WIND	1	SKY	1	TEMP	68°F	NOISE	1
FLAM 1 (N) Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 2 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 3 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
Incidental owls – species, distance and notes						Flam comments – visual?							
None													

PK-FLAM-09

STOP	<input checked="" type="checkbox"/>	WGS 84	way point		N lat	5115025	E long	- 605295
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STOP 2	Start Time	2	1	2	2	WIND	0	SKY	0	TEMP	68°	NOISE	1
FLAM 1 (N) Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 2 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 3 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
Incidental owls – species, distance and notes						Flam comments – visual?							
None													

Appendix IV - data form
Flammulated Owl Surveys – Montana and Idaho (USFS Region 1)

OBS				FOREST	Clearwater	DATE	7/17/2009
Transect #	PK1			Transect Name	Pete King 1	#obs	0
General location: FSR 453							

STOP	1	WGS 84	way point		N lat	5114879	E long	- 605782
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STOP	1	Start Time	2 1 3 8	WIND	0	SKY	0	TEMP	65°	NOISE	1
FLAM 1	(N) Y	b4 call: Y N	after call 1: Y N	after call 2: Y	# min		direct-n		distance		
FLAM 2	N Y	b4 call: Y N	after call 1: Y N	after call 2: Y	# min		direct-n		distance		
FLAM 3	N Y	b4 call: Y N	after call 1: Y N	after call 2: Y	# min		direct-n		distance		
Incidental owls – species, distance and notes						Flam comments – visual?					
None											

STOP	1	WGS 84	way point		N lat	5114678	E long	- 606209
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STOP	1	Start Time	2 1 5 3	WIND	0	SKY	1	TEMP	64°	NOISE	1-2
FLAM 1	(N) Y	b4 call: Y N	after call 1: Y N	after call 2: Y	# min		direct-n		distance		
FLAM 2	N Y	b4 call: Y N	after call 1: Y N	after call 2: Y	# min		direct-n		distance		
FLAM 3	N Y	b4 call: Y N	after call 1: Y N	after call 2: Y	# min		direct-n		distance		
Incidental owls – species, distance and notes						Flam comments – visual?					
None											

Appendix IV - data form

Flammulated Owl Surveys – Montana and Idaho (USFS Region 1)

OBS				FOREST	Clearwater	DATE	7/17/2009
Transect #		PK1	Transect Name		Pete King 1	#obs	0
General location: FSR 453							

PK-FLAM-06								
STOP	1	WGS 84	way point		N lat	5114832	E long	- 606703

STOP 1	Start Time	2209	WIND	0	SKY	1	TEMP	67°	NOISE	1
FLAM 1 N Y	b4 call: Y N	after call 1: Y N	after call 2: Y	# min		direct-n		distance		
FLAM 2 N Y	b4 call: Y N	after call 1: Y N	after call 2: Y	# min		direct-n		distance		
FLAM 3 N Y	b4 call: Y N	after call 1: Y N	after call 2: Y	# min		direct-n		distance		
Incidental owls – species, distance and notes					Flam comments – visual?					
None										

PK-FLAM-05								
STOP	2	WGS 84	way point		N lat	5114905	E long	- 607197

STOP 2	Start Time	2222	WIND	1	SKY	1	TEMP	65°	NOISE	1
FLAM 1 N Y	b4 call: Y N	after call 1: Y N	after call 2: Y	# min		direct-n		distance		
FLAM 2 N Y	b4 call: Y N	after call 1: Y N	after call 2: Y	# min		direct-n		distance		
FLAM 3 N Y	b4 call: Y N	after call 1: Y N	after call 2: Y	# min		direct-n		distance		
Incidental owls – species, distance and notes					Flam comments – visual?					
None										

Appendix IV - data form

Flammulated Owl Surveys – Montana and Idaho (USFS Region 1)

OBS				FOREST	Clearwater	DATE	7/17	2009
Transect #	PK 1			Transect Name	Pete King 1	#obs	0	
General location: FSR 453								

STOP	1	WGS 84	way point		N lat	51.4632	E long	- 607677
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STOP 1	Start Time	2	2	4	1	WIND	1	SKY	1	TEMP	65°	NOISE	1
FLAM 1 (N) Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 2 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 3 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
Incidental owls – species, distance and notes						Flam comments – visual?							
None													

STOP	2	WGS 84	way point		N lat	51.4460	E long	- 608144
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STOP 2	Start Time	2	2	5	4	WIND	1	SKY	1	TEMP	64	NOISE	1
FLAM 1 (N) Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 2 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 3 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
Incidental owls – species, distance and notes						Flam comments – visual?							
None													

Appendix IV - data form

Flammulated Owl Surveys – Montana and Idaho (USFS Region 1)

OBS				FOREST	Clearwater	DATE	7/17	2009
Transect #	P	K	1	Transect Name	Pete King 1	#obs		
General location: FSR 453								

~~PK-FLAM-02~~

STOP	1	WGS 84	way point		N lat	5114265	E long	-	608591
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STOP 1	Start Time	2	3	0	7	WIND	0	SKY	1	TEMP	64	NOISE	1
FLAM 1	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 2	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 3	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
Incidental owls – species, distance and notes						Flam comments – visual?							
None													

~~PK-FLAM-01~~

STOP	2	WGS 84	way point		N lat	5113825	E long	-	608831
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STOP 2	Start Time	2	3	2	5	WIND	0	SKY	1	TEMP	64	NOISE	2
FLAM 1	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 2	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
FLAM 3	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance			
Incidental owls – species, distance and notes						Flam comments – visual?							
None													

Appendix IV - data form

Flammulated Owl Surveys – Montana and Idaho (USFS Region 1)

OBS					FOREST			DATE			200
Transect #					Transect Name					#obs	
General location:											

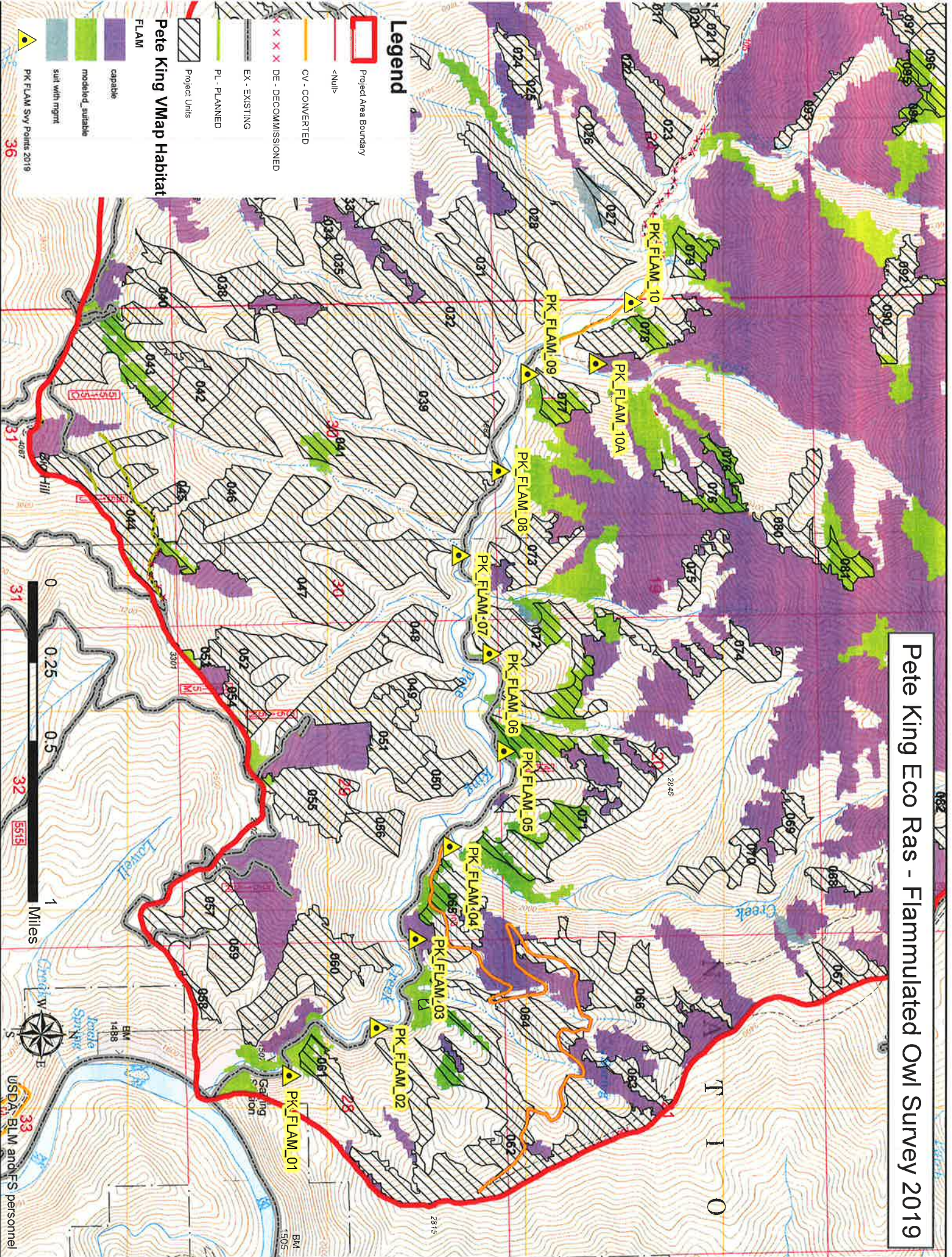
STOP	1	WGS 84	way point		lat	_____	long	- _____
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STOP 1	Start Time				WIND		SKY		TEMP		NOISE	
FLAM 1 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance		
FLAM 2 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance		
FLAM 3 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance		
Incidental owls – species, distance and notes						Flam comments – visual?						

STOP	2	WGS 84	way point		lat	_____	long	- _____
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STOP 2	Start Time				WIND		SKY		TEMP		NOISE	
FLAM 1 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance		
FLAM 2 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance		
FLAM 3 N Y	b4 call: Y N	after call 1: Y N		after call 2: Y		# min		direct-n		distance		
Incidental owls – species, distance and notes						Flam comments – visual?						

Pete King Eco Ras - Flammulated Owl Survey 2019



Northern Region Landbird Monitoring Program



Flammulated Owl Protocol



K. Smucker photo

Amy Cilimburg
Avian Science Center
Division of Biological Sciences
University of Montana, Missoula, MT 59812
<http://avianscience.dbs.umt.edu>
March 9, 2007

Contact: Amy Cilimburg: amy.cilimburg@mso.umt.edu; 406-243-2035

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INTRODUCTION

The Flammulated Owl, *Otus flammeolus*, is considered a sensitive species in USFS Region 1 and a Montana Species of Concern. Because Flammulated Owls do not arrive on their breeding grounds until early to mid-May, they have historically been missed in nocturnal owl surveys. They also seldom vocalize except at night and are rarely seen.

During the summer of 2005, the Avian Science Center (ASC) assessed the breeding season distribution of Flammulated Owls across Region 1 of the U.S. Forest Service as part of the Landbird Monitoring Program. In doing so, we developed a workable protocol with which to detect the presence of Flammulated Owls. And stemming from this work, we developed this recommended protocol. The final report detailing our 2005 findings, together with location maps and data, are available at http://avianscience.dbs.umt.edu/research_landbird_flam.htm.

From a scientific standpoint, it would be ideal if those surveying for Flammulated Owls in the region utilize these protocols and if possible, repeat transects initiated in 2005 (or earlier). This will allow for assessment of change over time and contribute to long-term monitoring. If this protocol is used, any new surveys and data can be incorporated into the ASC database for continued analysis.

Our general recommendations are as follows:

- Survey between May 15 – July 10, and repeat each survey twice per season if possible.
- Work in pairs.
- Utilize pre-existing transects or establish new routes with stops 500m apart.
- Use pre-existing GPS spatial data or collect these data on new routes.
- Conduct one transect /route per night and begin no earlier than 15 minutes after sunset.
- Use broadcast callers (playbacks) and 10 minute survey periods.
- Use data forms provided and return data (in excel format also provided via our web site) to the ASC, care of Amy Cilimburg.

There are 2 main tasks to accomplish these surveys:

1. Determine survey areas; locate and document survey stop points and spatial locations.
2. Conduct nocturnal broadcast surveys for Flammulated Owls.

DETERMINE SURVEY AREAS, DIRECTIONS TO SITES, SURVEY STOP POINTS

If working in Region 1 (Montana and N. Idaho), we recommend using the preexisting sites for long-term monitoring. Of course, new sites can be established, especially in target or project areas that contain potential habitat. These are available from Amy Cilimburg at the ASC.

The sampling design used in 2005 was based on a GIS framework and included random route selection within available habitat. For more information on both our site selection and potential Flam habitat see our 2005 final report and references therein.

Because these are nocturnal surveys and when establishing the routes, technicians generally worked solo, we restricted our site selection to stands to those within 500 meters of roads or trails. If time and personnel are available, it would be great to obtain Flam detection data from off-road areas.

The steps to take as outlined below will vary depending on the status of the route. You may be provided with previously run surveys or be the first to run a survey along a new route or area.

If there are a number of routes to be run a Forest, it is ideal if there is a tentative schedule developed so surveys are spread out geographically and areas are not relegated to late in the season (when detection rates diminish).

Each survey area should have a transect number and name—please provide these if necessary. Write these everywhere—all maps, the Transect location Form (Appendix II) and data forms (see below and Appendix IV). For each survey area, you will need to review maps (and potentially get advice) on the best approach and roads. Marked sets of orthophotos or aerial photo, Forest travel maps, and Transect Location Forms are important to utilize.

If establishing a new route, once you have decided on the general route and directions to the survey start, take notes on specific directions and set mileage counter to record distances to roads, intersections, etc (i.e., complete the Transect Location Form as you go).

Survey locations (stops or points) are every 500 meters as long as reasonable habitat remains. You will walk or drive and use your GPS unit to determine this (see Appendix III). If you are not getting GPS satellite coverage, you can pace. Transect length will vary depending on available habitat and timing. Hopefully, each transect is at least 8 stops – and as many as 20.

Try not to place your first point on the very edge of a selected area (though there may be a non-flam habitat on one side of the road. Instead, set your first point ~200m into the potential Flam habitat, and then continue every 500m until you've completed the transect. If you run into a large treeless section (clear cut, very large grassy opening), continue until you re-enter forested conditions and then set stops again.

If on a road, individuals can decide whether to walk or drive the route. If solo, consider driving. Refrain from leaving any permanent markings along the routes.

CONDUCT NOCTURNAL SURVEY FOR OWLS WITH BROADCAST CALLERS

SEASON: Flammulated owls surveys can begin as early as ~ May 15 and continuing through the second week of July. Ideally, each survey would be repeated twice during the season.

SAFETY: Your personal safety comes first. To minimize danger, work in pairs; be aware of the potential for bears, mountain lions, and ticks; bring a good flashlight and extra batteries; and bring proper clothing and other safety equipment (see Appendix I). Likely the biggest concern is the drive back to home or to camp after surveying—because you will undoubtedly be tired, please drive carefully, and hopefully only a short distance!

START AND FINISH: Calling for Flams can begin ~15 min after sunset, which is usually sometime between 21:45–22:30, Mountain Standard Time (Montana), or 20:45–21:30 Pacific Standard Time (Idaho). Thus, counts begin just after dark and continue until you have completed the requisite stops for that night (8-20, depending on available habitat or surveyor stamina).

UNACCEPTABLE FIELD CONDITIONS: Do not conduct surveys when the weather is bad enough to influence your ability to hear owls – that includes continuous rain (but not light drizzle) and wind that is constant and of enough strength to bend the tops of trees (Beaufort 5).

The weather across the Northern Region is so variable that we recommend you travel to the transect start point before assessing weather conditions. Oftentimes, winds will let up early evening just as night settles in. Under all circumstances safety comes first. If weather (e.g., lightening, cold, rain, snow) or road conditions are placing you at risk, please find safety.

If conditions are questionable, go ahead and survey but make a note detailing the weather conditions. Flams have been known to NOT respond to callers the night after a storm (presumably they more interested in finding food then defending territories), so if you have flexibility, try to schedule the survey with the best possible conditions, both the night before and the day and night of.

DATA COLLECTION: Details for how and what data to collect are as follows: Recommended data forms are included here (Appendix IV) and are also available @ http://avianscience.dbs.umt.edu/research_landbird_methodsmanual.htm

On the main data form, general transect information is entered on the start of the first page, followed by the GPS and owl data. Always fill in every variable on the field forms, with some exceptions as noted below. Blanks are interpreted as missing data, NOT as zeros. Likewise, a zero is NOT to be used to represent missing data. Forms with missing information compromise the reliability of your data. To avoid mistakes, it is absolutely essential to double-check your entries on data forms and maps on the same day that each transect is run.

Please fill out the top of each form – stapled pages will undoubtedly get separated!

Table 1. Instructions for recording information on top of the first data form

VARIABLE	EXPLANATION
OBS	Observer - first 2 initials, then write out full last name.
FOREST	Forest or other land management unit
DATE	Use 1 column for month, 2 for day, last digit for year; 617 = June 17.
TRANSECT #	Number provided if previously established route
TRANSECT NAME	Name given or unique name you give the transect (usually based on road or other geographic feature)
# obs	Number of observers present for owl calling
General location	Write out geographic location (especially important if this is a new route / area)

Table 2. Instructions for recording information for point location and habitat component

VARIABLE	EXPLANATION
WAY POINT	GPS way point provided from unit (for uploading data from unit later)
LATITUDE	In decimal degrees – include here even if you plan to upload data later
LONGITUDE	In decimal degrees – include here even if you plan to upload data later

If for some reason you need to use UTMS, write the point locations carefully in the space

below the lat/longs and **PLEASE provide the projection.** See below.

You will spend 10 minutes listening and calling for owls: two minutes of silent listening, 1 minute of broadcast calling, 3 minutes of post-broadcast listening, 1 minute calling, 3 minutes listening. For the 1 minute of broadcasting, play 15 seconds with caller pointed in each cardinal direction.

2-1-3-1-3
L C L C L

L = Silent listening
C = Calling

For the broadcast caller, we recommend using a pre-recorded call and the Foxpro caller. These devices are very reliable and the volume can be carefully adjusted (ideally the call can be heard for ~200m). However, it is essential that a low frequency secondary speaker is used with these Foxpros (available by request from the company). It is also possible to use a CD or tape player, with hand-held speakers.

Callers will still be used if owls are heard in the first 2 minutes (to identify other Flams in the vicinity and be consistent). One row in the data form is used for each Flammulated Owl detected.

Table 3. Instructions for completing the calling section of surveys.

VARIABLE	EXPLANATION
STOP	Stop (point) number, should always run from 1 to 15 (or greater)
TIME	Use the 4-digit military time-of-day the count is started at point; e.g., 2210.
WIND	Use the Beaufort wind scale codes (0-5) as defined below.
SKY	Use the codes (0-4) as defined below.
TEMP °F	Record air temp to the nearest 2° F (estimate if thermometer is not available)
NOISE	Use the codes (0-4) defined below for description of stream or other CONSTANT noise (and its probable effect on owl detectability). Intermittent noise is NOT considered here but should be noted in the comment section.
FLAM 1 N Y	Presence of 1 FLAM – circle No or Yes. If no, DONE. If yes – continue
FLAM 2 N Y	Presence of a second FLAM – circle No or Yes. If no, DONE. If yes – cont.
FLAM 3 N Y	Presence of third FLAM – circle No or Yes. If no, DONE. If yes – cont.
B4 call: Y N	Was owl detected before the caller (first 2 minutes)?
After call 1 Y N	Was FLAM detected after the first round of calling?
After call 2 Y	Was FLAM detected after the second round of calling?
# MIN	# of minutes from the start that it took to first detect FLAM (if after call, time must be at least 2 minutes).
DIRECTION	The approximate compass direction to the detected owl
DISTANCE	The approximate horizontal distance to the owl. We know this may seem like a wild guess, especially initially. If you walk past the bird and listen again, you may get an idea of it's location (via triangulation). Do your best!
INCIDENTALS	Other owl species (or wildlife) detected and any brief info regarding these
COMMENTS	Did you see the FLAM, find nest, triangulate to determine distance, etc...

If you fail to finish a point count (some form of disturbance or weather forces you to quit), make

it clear that the count was not completed, and draw a line through the table. Do not enter those data into the computer (but note the time spent at the point in the comments section).

If you have not been given and cannot obtain GPS locations, please try to describe the point locations (using obvious point markers: bridge, road or trail intersection, some distinct geographic feature) and place them on a topographic map and aerial photos. This will aid in relocating points in future years.

The owl that sounds the most like a Flammulated Owl is the Long-eared Owl. Listen to the difference via the calls on our web site. Their habitats may overlap slightly; Long-eared Owls inhabit open, sparsely forested habitats, which may occur at the lower elevation end of Flam habitat.

CODES

WIND CODES (Beaufort Wind Scale):

- 0 -- < 1 mph; smoke rises vertically
- 1 -- 1-3 mph; wind direction shown by smoke drift
- 2 -- 4-7 mph; wind felt on face; leaves rustle at times
- 3 -- 8-12 mph; leaves and small twigs in constant motion; light flag extended
- 4 -- 13-18 mph; raises dust and loose paper; small branches in motion
- 5 -- 19-24 mph; small trees sway; crested wavelets on inland waters

SKY CODES (Sky Condition): you probably shouldn't be surveying with a 4!

- 0 -- clear or few clouds
- 1 -- partly to all cloudy
- 2 -- light drizzle
- 3 -- constant snow
- 4 -- constant rain

NOISE CODES (for constant noise, not intermittent):

- 0 -- no noise
- 1 -- some noise but can hear well
- 2 -- hearing noticeably impaired
- 3 -- can't hear beyond immediate area; difficult to hear anything at all

DATA ENTRY

Ideally data would be transposed from field forms to the computer soon after the survey and by the person who collected the data. However, if this is not possible, please send the hardcopies to Amy Cilimburg at the ASC. Thus, it is essential that data forms are complete and legible!

Data are entered in a standard excel spreadsheet format, available on our web site - http://avianscience.dbs.umd.edu/research_landbird_flam.htm. The first line in this file contains the variable names and the second is an example of just how your data should look. Before sending your data, delete the sample line. It is important that any electronic data files forwarded to the ASC are in the exact format provided. We would also like the hard copy data forms. If you enter something different from what is on the data form first, be very sure it is correct, and second, explain the discrepancy on the form. Otherwise we may assume it is a data entry error and change it later.